

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Gridley et al.

Application No. 09/491,661

Art Unit: 1733

Examiner: J. Fischer

Filed: January 27, 2000

For: METHOD AND APPARATUS FOR
PREPARING TIRE TREAD FOR A
RETREAD TIRE

PENDING CLAIMS AFTER AMENDMENTS
MADE IN RESPONSE TO OFFICE ACTION DATED SEPTEMBER 25, 2001

14. (Amended) A method of cutting a length of tire tread for a retread tire having a tire casing, the method comprising:

measuring a circumference of a tire casing wherein a cushion gum may be present;

automatically communicating, electronically, the circumference of the tire casing to a tire tread dispenser;

automatically dispensing a length of tire tread based on the circumference of the tire casing;

adjusting said tire tread so that the tire tread design on each end matches at the point where the tread may be cut; and

cutting the tire tread so that said tread design will appear substantially continuous across a seam generated by each end of said tread once applied to the tire casing.

15. The method of claim 14, further comprising:
dispensing tire tread until a first end of the tire tread abuts a stop.

16. The method of claim 15, further comprising:
clamping the tire tread adjacent the first end.

17. The method of claim 16, further comprising:

retracting the stop.

18. The method of claim 17, further comprising:
clamping the tire tread adjacent a second end.
19. The method of claim 14, further comprising:
cutting the tire tread to an automatically determined length.
20. The method of claim 14, further comprising:
cutting the tire tread to an operator determined length.

22. A tire tread cutting apparatus for cutting a length of tire tread, the length of tire tread having a first end and a second end and a periodically repeating tread pattern, to be affixed to a tire casing having a cushion gum, comprising:

a measuring device configured to measure at least one of the circumference of the tire casing and the circumference of the tire casing plus the cushion gum; and

a tread dispenser configured to automatically dispense a length of tire tread based on the circumference of at least one of the tire casing and the tire casing plus the cushion gum, the tread dispenser including a tread cutter for cutting the tread to define the length of tread, and the tread dispenser configured to allow the tire tread to be adjusted relative to the tread cutter to permit the length of tread to be determined such that the ends of the tire tread come together after the tread has been applied to the tire casing and the tread pattern at the second end substantially matches the tread design at the first end.

23. The apparatus of claim 22 wherein the tread dispenser includes a plurality of tread rollers for mounting a roll of tire tread thereto, the length of tire tread being dispensed from the roll.

24. The apparatus of claim 22 wherein the tread dispenser includes a plurality of drive rollers for moving the length of tire tread.

25. The apparatus of claim 23 wherein the tread dispenser includes a plurality of drive rollers for deploying the length of tread by simultaneously pushing and pulling the tread.

26. The apparatus of claim 23 wherein the tread dispenser includes a plurality of drive rollers, the drive rollers disposed between the roll of tire tread and the tread cutter, the drive rollers configured to deploy the tire tread from the roll to the tread cutter.

27. The apparatus of claim 22 further comprising:
a curved track for guiding the length of tire tread therealong.

28. The apparatus of claim 22 wherein the tread dispenser further includes a first clamp for clamping the length of tire tread adjacent the first end, and a second clamp for clamping the length of tire tread adjacent the second end.

29. The apparatus of claim 27 wherein the tread dispenser further includes a first clamp for clamping the length of tire tread adjacent the first end, and a second clamp for clamping the length of tire tread adjacent the second end.

30. The apparatus of claim 29 wherein the first clamp includes a first clamp encoder, and the second clamp includes a second clamp encoder, the first and second clamp encoders configured to track the location of the first and second clamps, respectively, along the track.

31. The apparatus of claim 29 wherein the first clamp is configured to propel the first end of the length of tire tread along the track.

32. The apparatus of claim 29 further comprising:
a retractable stop configured to provide a known location of the first end
relative to the first clamp.

33. The apparatus of claim 29 wherein the tread cutter is located a known distance
from the second clamp.